SIGNIFICANCE OF MILDLY ELEVATED CREATINE PHOSPHOKINASE (MYOCARDIAL BAND) ACTIVITY AFTER ELECTIVE ABDOMINAL AORTIC ANEURYSMECTOMY.

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Mildly elevated postoperative CPK-MB levels are not uncommon in patients undergoing abdominal aortic aneurysm (AAA) repair, but the clinical significance is unclear. A series of 348 patients who underwent AAA repair between 1979-1981 were evaluated retrospectively and followed for a median of 4.6 years. CPK-MB was assessed by agarose electrophoresis. Pre and postoperative electrocardiograms for each patient were analyzed independently according to the Minnesota code. One hundred and seven patients (31 %) had postoperative CPK-MB elevation of trace or greater (37 had trace, 35 had 1-4%, and 35 $\geq$ 5%). There was no difference in survival between those with trace and no CPK-MB elevation. Patients with increased CPK-MB ($\geq$ 1%) values were more likely to have ECG abnormalities. Survival was associated with the degree of CPK-MB elevation: the higher the CPK-MB, the worse the survival. The following ECG abnormalities were related to decreased postoperative survival: left ventricular hypertrophy (? <0.001), ST-segment abnormalities, either left (0.001) or right (0.01) bundle branch block, Q-wave infarct (0.001) and atrial fibrillation (0.001). There were 15 in-hospital deaths and 97 post dismissal deaths. Sixty-one percent of these were from cardiac causes.

We conclude that in patients undergoing elective repair of AAA, even a minor rise in postoperative CPK-MB is associated with ECG abnormalities and reduced postoperative survival. Especially in younger patients, closer cardiac follow-up and more aggresive postoperative cardiac assessment seem warranted.

HIGH PREVALENCE OF RENAL ARTERY STENOSIS IN PATIENTS WITH RENAL INSUFFICIENCY UNDERGOING CORONARY ANGIOGRAPHY

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Because of increased concern regarding the frequency and potential functional impact of renal artery stenosis (RAS) on renal function the frequency of RAS was assessed in 50 patients (pts) with renal insufficiency (RI) undergoing coronary angiography (CA). Cine abdominal angiograms (AA) were routinely performed by two angiographers during CA in pts with RI defined by a stable but elevated pre-CA BUN and/or creatinine (Cr) above 20 and 1.2 mgs%, respectively. All AA were independently reviewed by two observers with joint agreement. Non-ionic contrast (NIC) was used in 10 pts (20%) chosen by attendings more commonly in pts with worse baseline renal function. There were 29 males and 21 females with a mean age of 65 $\pm$ 2 (SEM) years. Coronary artery disease was present in 39 (79%), hypertension in 33 (67%) and diabetes mellitus in 7 (14%). Mean pre-CA BUN was 32 $\pm$ 3 mgs%; Cr was 1.9 $\pm$ 0.1. Mean Cr increased slightly following CA to 2.1 $\pm$ 0.2 mgs% ($p \leq 0.05$), but no pt developed renal shutdown or required dialysis. RAS defined as $\geq$ 50% was present in 19 pts (40%). Bilateral RAS was seen in 7 of 19 (37%). Pre-CA BUN (32 $\pm$ 4 vs 32 $\pm$ 4 mgs%) and Cr (2 $\pm$ .2 vs 1.8 $\pm$ 2 mgs%) were similar for pts with and without RAS. However, post-CA Cr rose to 2.4 $\pm$ 0.3 mgs% ($P \leq 0.05$), while post-CA Cr was unchanged 1.9 $\pm$ 0.3 (P = NS) in pts without RAS. There was no difference in the frequency of NIC use for either group. In conclusion, RAS is a frequent finding in pts with RI undergoing CA. Furthermore, contrast induced changes in Cr appear more likely in pts with RAS perhaps secondary to a reduction in renal blood flow contributing to a greater possibility of contrast nephrotoxicity.

EVALUATION OF ANGIOPLASTY MODALITIES FOR RECANALIZATION OF PERIPHERAL VASCULAR DISEASE: ANGIOSCOPIC AND ANGIOGRAPHIC OBSERVATIONS OF LASER PHOTOABLATION COMBINED WITH BALLOON DILATION OR ATHERECTOMY.

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A total of 42 lesions (26 occlusions and 16 stenoses) in the iliac, femoral and popliteal arteries were successfully recanalized without complications using different interventional modalities including coaxial laser probe catheter (LPC), balloon dilation catheter (BDC) or atherectomy catheter (AC). The LPC (Unicorn-Probe-TM, Xintec Inc., Oakland, CA) which comprises a front-mounted central guidewire on a metal probe effecting quick rise-quick fall bursts of intermittent laser thermal band energy (average 0.6 seconds at 18 watts) was initially used. Photoablation was followed by balloon angioplasty using conventional BDC or AC (Simpson Peripheral Atherocath, Devices for Vascular Intervention Inc., Redwood City, CA). Angiographically luminal patency improved from 11% to 59% post-LPC and to 85% post-BDC or AC. Symptom relief and/or leg salvage was achieved with improved ankle/arm index. Angioscopic visualization (ImageCath, Baxter Corporation, Irvine, CA) revealed smoothly ablated lumen with vascular charring after LPC. However, BDC caused intraluminal tears with sloughing of intimal lining, and AC produced tiny trenches with intervening intimal flaps. Thus, while improved angiographic patency is achieved by intraluminal revascularization catheters, angioscopic evidence indicates that these devices can cause substantive damage to the vascular wall not appreciated angiographically.

Wednesday, March 21, 1990
2:00PM-3:30PM, Room 14
Contrast Echocardiography

DETERMINATION OF CARDIAC OUTPUT FROM RIGHT VENTRICULAR CONTRAST ECHOGRAMS IN DOGS.

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Venous injection of microbubbles produces RV echo contrast that exhibits indicator-dilution monoexponential washout characteristics. However, the videodensitometric (VDT) analysis of RV time-intensity curves to yield a washout related to CO has been limited by lack of a reproducible contrast agent. The purpose of this study was to compare washout of RV contrast by VDT at varying levels of CO in closed chest dogs, using Echovist(SHU-454), a biodegradable saccharide contrast agent. Seventy-seven different levels of CO (0.8 to 9.4 L/min) were produced in 7 dogs by pharmacologic intervention. Two contrast echograms were performed at each level of CO by injection of 2.5 ml Echovist (300 mg/ml). VDT sampling in the RV for each videotape frame yielded gray values (0-255/pixel) which were converted to log scale. Linear regression analysis of the 5 sec of washout following peak contrast intensity gave decay slopes for each injection. Two decay slopes were averaged and compared with 3 thermodilution (TD) determinations of each CO. For individual dogs, good correlation was found between decay slope and TD-CO (r=0.84 to .99) while the overall correlation for all CO in all dogs was r=.78. Comparison of washout slopes for paired injections showed a correlation of r=.82(p=NS) for the 154 injections, suggesting good reproducibility. These data indicate that VDT analysis of RV contrast echograms obtained with venous injection of Echovist can be used to estimate cardiac outputs for a group of animals, and to accurately predict directional changes of CO in individual animals.